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ABSTRACT

An overview of cognitve styles and research in the field of field dependence/field independence within the context of the special needs of Hispanic students is presented. Various studies by Witkin et al. on the dimension of field dependence/field independence required the subject to perceive an item independently of the field or context that surrounds it. Findings regarding developmental trends in field dependence/field independence, origins of this dimension, sex differences, and interpersonal behavior are considered. The three basic instruments for the measurement of field independence are described, and implications for learning and teaching are examined. It is suggested that since Hispanic American students tend to score in a more field dependent direction than Anglo American students, their cognitive style may have educational implications for the teacher attempting to deal with the particular needs of these students in the classroom. The relationship of the teacher's cognitive style to his/her mode of operating in the classroom is also investigated. Child rating forms for field independent/dependent observable behaviors, teaching strategies observation instruments, and references are included. (SW)

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FIELD-DEPENDENCE / FIELD-INDEPENDENCE

Educational Implications for Bilingual Education

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FIELD DEPENDENCE/FIELD INDEPENDENCE: EDUCATIONAL IMPLICATIONS FOR BILINGUAL EDUCATION

I. INTRODUCTION

Sixteen percent of the population of the United States has a language other than English as a first language. This figure translates into approximately 33.2 million Americans whose native language is not English. Of these the largest language group comprises persons of Spanish speaking background: Mexican Americans (6.3 million), Puerto Ricans (1.5 million), Cuban Americans (.7 million), and other persons of Hispanic origin (2.0 million). Moreover, Hispanics as a group also constitute the second largest minority group in the United States.

Since 1940 the Hispanic population has experienced a rate of growth greater than any other group, a fact that has been attributed to increased immigration and larger family size (Fishman, 1966). Of special significance to this paper is the fact that the U.S. Census Bureau reports that close to five million persons under 20 years of age speak Spanish at home.

These youth and children have special education needs that cannot be ignored. The development of educational programs that will enable them to successfully progress through the public school educational system, as well as participate fully in the social and economic life of the U.S. cannot be delayed or abandoned. This is especially crucial since a significant

number of Hispanic children demonstrate a low level of academic achievement.

The purpose of this paper is to provide an overview of cognitive styles and research in the field within the context of the special needs of the Hispanic student.

Academic Status of Hispanic Children

Low levels of academic achievement are frequently found in children from minority ethnic groups. For example, 40% of Mexican American and 36% of Black American students in the Southwest fail to complete high school; only 14% of Anglo American students in the same region do not finish high school, (U.S. Commission of Civil Rights, 1971). Further, in New England 25% of the total number of Spanish-speaking students are retained in grade for at least three years and 50% for at least two years. In 1975 only 12% of the Spanish speaking student population were found to be in the correct grade for their age group (U.S. Commission on Civil Rights, 1975).

The Coleman Report (1966) shows that the academic achievement scores of 12th grade Mexican American students is 4.1 years behind the national norm in math achievement, 3.5 years behind in verbal ability, and 3.3 years behind in reading. The Puerto Rican student is 4.8 years behind the national norm in math, 3.6 years behind in verbal ability, and 3.2 years behind in reading. Moreover, the proportion of Mexican American students reading

below grade level in 1971 is twice that for Anglo American students (U.S. Commission on Civil Rights, 1971). In 1972, the school dropout rate for 10th grade Puerto Ricans in New York City was 57% (U.S. Commission on Civil Rights, 1972).

These statistics, indicating low achievement levels and high drop-out rates among students of Hispanic origin, reveal the failure of the American educational system in meeting the particular needs of this language minority. Of course, this phenomenon is complex with multiple contributing factors. To suggest that language is the only, or even the primary, factor can be misleading. Although language can and does play a major role in determining the academic status of Spanish-speaking students, there are other cultural factors which have a substantial impact on performance in school by Hispanic children.

A large scale observational study in the five Southwestern states was conducted in 496 ethnically mixed classrooms (U.S. Commission on Civil Rights, 1973; Jackson and Cosca, 1974). The study provided empirical data revealing differences in teacher interaction with Mexican American and Anglo American students. The results of the study showed that schools in the Southwest are failing to involve Mexican American children as active participants in the classroom to the same extent that Anglo American children are involved. Using an adaptation of the Flanders system to assess interaction between students and teachers, teachers on the average were found to: 1) direct more questions to Anglo American students than to Mexican

American students; 2) give less overall noncritical attention to Mexican American pupils; 3) use the contributions of Anglo American children more often than those of Mexican American children to illustrate or to build upon a concept; and 4) praise and enocurage Anglo American children more frequently than Mexican American children.

In another study, conducted by Byers and Byers (1972), some of the complex issues involved in understanding interpersonal behavior in a sociocultural context were analyzed. One aspect studied was nonverbal communication between teachers and students. The authors concluded that some of the differences that teachers show in interacting with students, that initially may appear to be discrimination, might actually be the result of a lack of familiarity with interpersonal patterns of behavior particular to a cultural group. These patterns of behavior might be evident in a particular type or sense of humor, the use of certain nonverbal cues, or the belief in a "different set of values". There are expectations held but never voiced, and behaviors understood only by individuals of the same group. What may have a clear and straightforward meaning in one cultural setting may have a different connotation in another cultural setting. Therefore the intentional display of behavior for which a person has specific expectations may elicit no response or the wrong response if displayed in a different cultural setting. This would of course cause frustration and confusion for all concerned in the interaction. Since there may

be instances in which a behavior in one culture means the opposite of what it is intended to communicate in another culture, this can result in serious misunderstanding. It is understandable then that, as a result of a day-to-day build-up confusion and misunderstanding, teachers and students might simply refrain from interacting.

Thus, although Mexican American children do speak less frequently in the classroom, this situation may occur in response to confusion and frustration over teacher demands and expectations. It cannot be ignored, however, that Mexican American students do participate in the daily activities of the classroom less actively than Anglo American children.

Education of Hispanic Children

It is essential that educators study and become familiar with the cultural patterns of ethnic minority children if the schools are to be a profitable, challenging and less frustrating experience for these children. It is the goal of bilingual education to achieve this end. The federal government shares this goal, as evidenced by legislation and federal court decisions in recent years which have supported bilingual education. For example, OCR's and LAU Remedies prescribe the procedures school districts must follow in order to comply with the U.S. Supreme Court's decision Lau vs. Nichols. These guidelines require schools to diagnose the instructional needs of school

children of limited English-speaking ability and guide the selection of educational programs for them. Section II of the Remedies states:

> The second part of a plan must describe the diagnostic/prescriptive measures to be used to identify the nature and extent of each student's educational needs and then prescribes an educational program utilizing the most effective teaching style to satisfy the diagnosed educational needs. The determination of which teaching style(s) to be be used should be based on a careful review of both the cognitive and affective domains and should include an assessment of the responsiveness of students to different types of cognitive learning styles and incentive motivational styles—e.g., competitive vs. cooperative learning patterns.

These recommendations demonstrate an increased responsiveness to the cultural differences among children. However the implementation of the guidelines has been, to some extent, a frustrating task for school districts. In order to follow up the guideline recommendations, information about learning styles and cultural patterns related to cultural membership must first be amassed. A large body of information in these areas, however, is not yet available. Cross-cultural research is in progress, but it is still at an early stage with findings to date fragmentary and exploratory in nature.

One area which has been in the focus of research in recent years is that dealing with differences in cognitive styles; more specifically, the differences between field dependence and field independence—known also as analytical vs. global or field sensitive vs. field independent. Results of cross-cultural research in field-dependence/independence have shown that children of

Hispanic origin tend to reflect a more field-dependent direction than Anglo-American children (Witkin and Berry, 1975; Castañeda, Ramirez, & Herold, 1972).

The section which follows provides the reader with an overview of cognitive styles and research findings in the area of field dependence/field independence. A later section in this paper discusses research activities in cognitive styles with the Hispanic student as the subject of study, and the potential implications of such research for the education of Hispanic children.

II. REVIEW OF COGNITIVE STYLES

Cognitive style has been defined by Witkin, Oltman, Raskin and Karp (1971) as:

> .....the characteristic of self-consistent modes of functioning which individuals show in their perceptual and intellectual abilities. These cognitive styles are manifestations in the cognitive sphere of still broader dimensions of personal functioning which cut across diverse psychological areas (1971, page 3).

The concept of cognitive style is based on three main assumptions: 1) Cognitive styles are process variables rather than content variables in the realm of individual differences. 2) Cognitive styles are bipolar continua. This bipolarity is essential in distinguishing them from unipolar dimensions, such as intelligence and ability which imply value judgments—"good or bad" ends. Recently cognitive style research (Witkin et al.,

1975) has focused on the adaptive implications of each perceptual mode under specific circumstances. 3) Cognitive styles are pervasive dimensions. Klein (1958) explains that they define rules by which perception, memory, and other basic qualitative forms of experience are shaped.

Among the various modes of cognitive styles, the concept of field-dependence/independence has been the most researched (Wolintzki and Wachtel, 1970), with the study of conceptual tempo next in the list of modes that have received the greatest interest and research.

Early Studies in Field Dependence/Field-Independence

The concept of field-dependence/independence was originally developed from the work of Witkin and others (Witkin 1949, 1950, 1952; Witkin & Asch 1948a, 1948b; Asch & Witkin 1948a, 1948b) which explored the dimensions involved in the perception of verticality. Vertical perception is related to visual and kinesthetic factors. The former is the information we receive from the visual environment filled with verticals that correspond to the true upright in space. The latter refers to the information we receive from the position of our body since the body is continuously adjusting itself to the pull of gravity in order to maintain vertical position and balance.

The earliest study by Witkin (Witkin & Asch, 1948) reported the manner in which subjects perceived the vertical position of

a movable rod. This rod was in a rectangular field (a frame) tilted at an angle from the vertical position. Each subject was put in a darkened room, with only the rod and the frame illuminated, and asked to set the rod to the true vertical (upright). Individual performance on this task varied markedly. Some individuals were unaffected by the position of the field and readily set the rod to the true vertical. Others were affected by the position of the field, perceiving the rod as upright only when it was aligned with the axes of the field. The darkened room was used to eliminate any visual cue from the environment as to the true upright. This experimental condition was later known as the Rod and Frame Test (RFT).

In another study, Witkin (1949) explored the perception of the vertical in relation to body adjustment. Here the object of the perception was the body rather than a visual object. For this study a chair that could be tilted to the left or to the right was placed in a small room that could also be tilted to the left or to the right. The subject was seated in the chair and asked to position the chair to the true vertical (upright). Individual differences in performance were very similar to those described for the rod and frame situation. There were some individuals who, in order to perceive their own bodies as upright, required that they be fully aligned with the surrounding tilted room. Others were unaffected by the position of the room and readily set the chair to the true vertical. Here again individual performance fell between the two extremes. This

experimental condition was known later as the Body-Adjustment Test (BAT).

In these two studies the objective was to position an object as a discrete entity in a vertical position disregarding the surrounding field. This basic idea was translated to a third experimental condition (Witkin, 1950) very similar in its perceptual structure. The task was to perceive and trace a simple geometric figure embedded within a larger, more complex figure. The subject was shown a simple figure which was then replaced by a complex figure. The subject was instructed to locate the simple figure within the complex figure. Individual performance on this task differed markedly in the time required to locate the simple figures. Once again some individuals were affected by the complex field in which the simple figure was embedded. Others were more readily able to identify the simple figure that emerged from the complex design. After some adaptations, this experimental condition was known as the Embedded Figures Test (EFT).

Consistent high correlations have been found between performance on these three tests (Witkin, Lewis, Hertzman, Moachove, Meissner & Wapner, 1954; Witkin, Dyk, Fatesson, Goodenough & Karp, 1962). In all of these conditions, the subject is required to perceive an item independently of the field or context which surrounds it. For this reason, the individual consistency tapped by these tests was labeled <u>field-dependence versus field-independence</u>.

The dimension of field-dependence/independence has been found across different sense modalities and tasks. For example, there is an auditory embedded figures test (White, 1953) which consists of locating a simple tune in a complex melody. There is also a tactile embedded figures test (Axelrod & Cohen, 1961), in which a simple raised figure composed of outstanding contours must be identified through touch when embedded in a more complex figure. Studies done with the deaf (Fiehert, 1967) and the blind (Witkin, et al., 1968) also show individual differences in performance in this cognitive dimension.

Witkin and his associates (1962) regard the pervasive dimension of field-dependence/independence as an expression of a more general process of individual functioning known as "psychological differentiation." The following section provides an explanation of this theory and its manifestation during the development of the individual.

Psychological Differentiation

Witkin's concept of differentiation acquires more meaning when it is described as a progressive change that takes place from low toward more advanced levels of cognitive functioning.

A major finding in the studies of field-dependence/independence (Witkin, Lewis, Hertzman, Machover, Meissner & Wapner, 1954) was that young children tend to perceive in a relatively field-dependent fashion and, as they grow older, the perception

assumes a more field-independent form. For younger children, the overall structure of a given configuration strongly dominates the manner in which constituent parts are perceived.

To enable greater differentiation psychological development must be accompanied by increasingly more complex organization of the perceptual and intellectual system. Early in development, a child experiences himself and his environment more or less as an undifferentiated "mass" or "whole." One of the very early developments in cognitive experience is the growing awareness of a difference between inner and outer within the original body-field matrix. Boundaries between the body and the outer word are formed and continue to become stronger during the course of development.

Early in the development of visual perception, for example, the geometrical relationship among the parts of a stimulus field is a dominant determinant of perceptual organization. During development, stimulus objects gain a functional meaning as a consequence of continuous interactions with the environment. The functional meaning may contribute to the developing discreteness of objects, which may serve as the basis for the development of nongeometrical integrations of the perceptual field. In this way, the individual develops the ability to perceive items as discrete from their context or field.

Thus, early experience is essentially global; however, during the development early experience becomes progressively more articulated, more analytical, more structured, and,

consequently, more differentiated. This underlying process toward greater differentiation during development is expressed in several areas of psychological functioning.

Developmental Trends in Field/dependence/Field-independence

Developmentally there is an increase in field-independence from about age 5 to 15, with the level reached being maintained to about the early 40s. During these growing years, there is a relative stability of field-dependence/independence. Children tend to maintain the same position relative to their age group as they grow up. As a group, children show movement toward greater field-independence.

During young adulthood, there is an almost absolute stability even over extended periods of time (Faterson & Witkin, 1970). Bauman (1951) reports very high correlations between test-retest during a period of more than three years. In working with young adults, he found no evidence of change during major changes in life experiences such as marriage, psychotherapy, or divorce.

Later, as the individual becomes older, there appears to be a movement toward greater field-dependence (Witkin, Goodenough, & Karp, 1967). During the late 30s or early 40s, on the average, the rate of differentiation may accelerate. Schwartz and Karp (1969) and Comalli (1965) work with geriatric groups that were found to be extremely field-dependent. Although Karp

(cited in Witkin, Goodenough & Karp, 1967), in an unpublished study, found that the rate of differentiation varies, geriatric subjects who were still actively engaged in regular employment were more field-independent than those no longer employed.

Various attempts have been made to modify individual field-dependence/independence, but the results are not conclusive. Efforts to observe and/or effect change in field-dependence have included: drug administration (Franks, 1956; Karp, Witkin & Goodenough, 1965a, b; Pollack, et al., 1960); stress (Kraidman, 1959); training (Morell, 1976; Weiner, 1955; Witkin, 1948); electroconvulsive shock (Pollak, et al., 1960); arousal (Oltman, 1964); body rotation (Wold, 1965); sensory isolation (Davis, McCaurt and Soloman, 1958); and hypnosis (Garret, 1975).

Origins of Field-dependence/Field-independence

Several factors have been associated with the development of a particular field-dependent or field-independent style. All the factors studied can be classified into a well-known dichotomy: nature as opposed to nurture.

Constitutional factors have been associated with the earliest observable field-dependence/independence/. Vanderberg (cited in Witkin, et al., 1962) administered the RFT to groups of fraternal and indentical twins as a part of a general investigation of hereditary factors in psychological traits. It was found that performance on the RFT was more similar between

identical twins than between fraternal twins. The results of Vanderburg's study seem to rule out the possibility that the nature of the child's perceptual functioning can be explained on the basis on purely environmental factors. However conclusive results cannot be generalized from studies such as these since identical twins have more similar "stimulus" value to family environment than do fraternal twins. Studies with identical twins reared apart would permit a more controlled observation of genetic factors. (Other studies which have investigated the question of constitutional influence on perceptual styles include Stuart, 1965; and Winestine, 1969.)

In addition there is a large body of evidence that relates differences in field-dependence to differences in central nervous system functioning and autonomic nervous system functions (cited Witkin and Oltman, 1967). However, because these are two-way interactions, it is difficult to determine if the functioning of the nervous system influences behavior or if it is the other way around. There are also studies with infants that suggest that some of the somatic differences found later in life may be present in he neonatal period and constitute precursors in the shaping of a particular cognitive style (Dyk, 1969). On the other hand, some of the experimental factors that have been pinpointed as determinants in the development of a given cognitive style are: 1) child-rearing practices, and 2) cultural factors.

In studying child-rearing practices, the effort to isolate different types of socialization practices has produced a great deal of interest in cross-cultural studies (Witkin and Berry, 1975). Several of these studies indicate that when parents put greater emphasis on conforming and obedience rather than on achievement and self-reliance, children tend to be more field-dependent (c.f. Kagan, 1974; Witkin, Price-Williams, Bertini, Christiansen, Oltman, Ramirez, and J. Van Me., 1974). When the cultural value that is stressed is cooperation, children may have to direct their attention toward social cues rather than to the specific characteristics of objects in the environment. Conversely, when the cultural value that is stressed is competence, children may have to direct their attention more toward the particular characteristics of objects and activities rather than to the social environment. These differences in emphasis can influence the development of either one or the other mode of cognitive style.

The child-rearing patterns that stress cooperation, obedience or conformity, and group needs, as opposed to patterns that focus on competition, self-reliance, independence and individual needs have been studied in relation to the characteristics of child-rearing practices found in agricultural groups and hunting groups. Studies have shown that agricultural groups tend to be markedly field-dependent in comparison with hunting groups, who tend to score in the other direction.

Dawson (1967a, b) conducted an extensive study to investigate this apparent dichotomy. In part, the rationale for his undertaking was to provide evidence for the comparison of two types of groups: 1) migratory hunting groups, and 2) sedentary agricultural groups. Observations gathered suggested that hunting groups consisted of small bands whose members, in seeking game, had to find their way around in a homogeneous surrounding. These people thus had to develop the skill of finding cues in the environment to survive (which may result in greater field-independence). In this society, child-rearing practices encouraged personal autonomy and self-sufficiency; there was a loose social structure with minimal role diversity.

In contrast the agricultural groups consisted of large groups in close proximity to each other, living in varigated environments in which their economy makes it unnecessary for them to move around. The people living in these groups had to develop the skill of finding cues in the social environment to conform (which may foster the development of field-dependence). In this society child-rearing practices stressed obedience, cooperation, and adherence to parental authority. The social structure was well defined and there was considerable role diversity. Each group thus adapts to the setting in which it is found.

It is perhaps significant that some Mexican American groups are still related to or involved in agricultrual activities. This may in part explain some of the most salient values that

are held by Mexican Americans as a group and by Mexicans individually. There is evidence too in cross-cultural research carried out in Mexico and the United States that Mexican children tend to perform in a more field-dependent direction than American children (Holtzman, Diaz-Guerrero & Swartz, 1975).

Moreover, the trend of field-dependence towards field-independence appears to parallel the degree of acculturation. Ramirez, Castañeda and Herold (1974), conducted a study in three Mexican American communities; one, the "traditional" community, was characterized by the learning of Spanish as the first language, the important role played by Catholic ideology, greater stress placed on interpersonal relations, and the greater orientation of people toward family and group needs. The second community, called "dualistic," was in transition and was a mix of the characteristics of the "traditional" and the acculturated community. The third community, the most acculturated was called "atraditional" in relation to Mexican origin and was characterized by the learning of English as a first language, no Spanish was spoken, Catholicism played a small role, interpersonal relations were less important, and competence and academic achievement received greater stress. This study indicated a clear trend from field-dependence in the traditional community toward more field-independence in the dualistic community, and the most field-independence in the atraditional community.

Another study was conducted with different ethnic populations: a group of Anglo Americans, a group of Mexican Americans, and a group of Blacks (Ramirez & Price-Williams, 1974). Results of this study showed that Blacks and Mexican Americans scored in a significantly greater field-dependent direction than did the Anglo Americans. Further, females in all groups were more field-dependent than males. Results confirm previous findings that individuals from groups that emphasize group identity, respect for family, and religious authority characteristically tend to be more field-dependent. On the other hand, individuals from groups which encourage questioning of convention, individual identity, and which are characterized by formally organized family and friendship groups tend to be more field-independent.

The evidence presented thus far supports the conclusion that neither constitutional nor experiential factors by themselves can be responsible for the development of a particular cognitive style, rather a combination of both—nature and nurture—influence its development.

Sex Differences

Consistent sex differences have repeatedly been found in the field-dependence/independence dimension. Boys and men tend to be more field-independent than girls and women, although sex differences may not be present before adolescence or in

geriatric groups (Witkin, Oltman, Roskin & Karp, 1971). But these persistent differences between sexes are very small in comparison with the range of differences within each sex (Witkin, Moore, Goodenough & Cox, 1975).

Evidence from cross-cultural research shows the absence of universal sex differences. Data from Western samples show more consistent differences between males and females. Recent studies show that sex differences in psychological differentiation are more pronounced in agricultural settings and are typically absent in hunting societies (Witkin & Berry, 1975). Role diversity has been proposed as an underlying reason for these differences. In hunting societies there are limited role differences between the sexes since women, along with men, have to play an important part in the economic system. Boys and girls alike are encouraged to achieve. In contrast, in agricultural societies there is considerable role diversity in general because there is a more complex social organization. Women do not have an overt role in the economic system but rather direct their energies to nurturing activities such as child-rearing and family care. These roles entail a high degree of involvement with others and promote the development of social sensitivity. In this type of society women and girls are encouraged to conform, thus, it is natural that females tend to be more field-dependent than males.

Field Dependence/Field Independence and Interpersonal Behavior

The study of the interpersonal behavior of field-dependent/independent persons has been an area that has produced among the most research. Most of the educational implications of field-dependence/independence have been related to this aspect. Therefore, it is important to review the findings in order to examine conclusions drawn previously and, perhaps, to arrive at new ones.

It has been widely documented that field-dependent individuals are different in their interpersonal behavior from field-independent individuals (Witkin & Goodenough, in press). The four ways in which this finding is manifested are:

1) Use of social referents
2) Attention to social cues
3) Interpersonal vs. impersonal orientation
4) Interpersonal attraction

1) Use of social referents.

If an individual's performance on the various field-dependence/independence tests is analyzed, the results will show that field-independent people rely more on internal referents, being less affected by the surrounding field in locating a figure or finding a vertical position. Individuals who are field-dependent, however, rely more on external referents, being more affected by the surrounding field in locating a figure or finding a vertical position.

The tendency of an individual to rely on internal or external cues as referents affects considerably the individual's orientation toward the main source of external referent: other people. People who are field-dependent make greater use of external social cues as referents. On the other hand, field-independent people tend not to use, or to use less of the cues provided by the social context (c.f. Linton 1952, 1955; Balance, 1957). This finding has been found in situations such as judgment forming (Solar, Davenport, Bruehl, 1969), opinion change (Schulman, cited in Witkin & Goodenough, in press), conflict resolution (Oltman, Goodenough, Witkin, Freedman & Firedman, 1975).

It can be said that field-dependent people are more able to accept other people's views in making a judgment, changing their opinion, and/or arriving at some agreement in resolving a conflict. But all of these findings were found only when there was an ambiguous situation and the social referents provided information that helped to remove ambiguity. Field-independent people, however seem to function with a greater degree of indifference to others under the conditions mentioned above. This separation between field-independent persons and the social context can sometimes be a limiting factor since at times information from others can be helpful.

Research on the effects of the different kinds of reinforcement for field-dependence has been reviewed in

detail by Goodenough (in press) who concludes that field-dependent people perform no differently from field-independent people in achieving extrinsic rewards such as social approval or material goods.

Field-dependent people seem to be more affected by the social context than field-independent people only when the situation is ambiguous and not structured.

2) Attention to social cues.

Since field-dependent people tend to be more selectively attentive to social information, studies have been done to determine the extent to which subjects direct their attention at the face of the person with whom they are interacting. Roble and Nakamura (1972) found that field-dependent children glanced at the experimenter a good deal more than field-independent children when they had to put together a puzzle and the experimenter, who was close to the child, was putting together a similar puzzle within the child's view. In the control situation the experimenter was not involved in such a task, in which cases, the looking behavior of field-dependent and independent children did not differ.

These findings confirm that field-dependent people show greater attention to faces under two necessary conditions: first, when the situation is ambiguous, and second, when the experimenter is viewed as a reliable source of

information. Several studies have attempted but failed to prove the superiority of field-dependent persons in learning faces or names under neutral experimental conditions, without actual social interaction (c.f. Adcock and Webberley, 1971; Alexander, 1970).

Moreover, in regards to social information, it has been found that field-dependent individuals demonstrate a better recall of social words than do field-independent persons; however, there was no difference between field-dependent persons and field-independent persons in recalling neutral words (Eagle, Goldberger, & Breitman, 1969; Fitzgibbons & Goldberger, 1971).

3) Interpersonal vs. impersonal orientation.

Since field-dependent people tend to seek information from external sources as an aid to functioning, it is expected that they look for situations in which those sources of information are available. Witkin and Goodenough (in press) reviewed the different sets of personal attributes that have been related to field-dependence/ independence. The descriptions that they give were collected by using rating scales. They describe the field-dependent person as sociable, gregarious, likes being with others, prefers interpersonal and group situations, shows need for friendship, wants to help others, and has a concern for people. In contrast the field-independent

person is described as individualistic, prefers solitary activities, aloof, cold and distant in relations with others, not interested in humanitarian activities, task oriented, concerned with ideas and principles rather than people, has work-oriented values such as efficiency, control, competence, and excelling.

Several studies have investigated the relationship between cognitive style and interpersonal space. Some of those studies found that field-dependent subjects moved closer than field-independent subjects to the person with whom they were interacting (Holley, 1972; Justice, 1969). Other studies have found a relationship between cognitive style and predisposition to self-disclosure. Field-dependent individuals have shown more readiness to reveal their own feelings and thoughts to others, whereas field-independent persons have shown greater reluctance to tell about themselves and demonstrate a disinterest in knowing about others (Sousa-Ponza, 1973; Tefcourt, Hogg & Sordoni, 1975).

Another area being explored is the relationship between productivity in the presence of others and field-dependence. This area of study can have enormous implications for increasing children's productivity in the classroom. Birnbaum (1975) found that the presence of others has an enhancing effect on the performance of field-dependent people. Birnbaum notes, however, much of what

has been pretty well documented in the literature may be limited to field-dependent people, since field-independent people seem to be relatively immune to effects of a group context.

In nursery school situations field-dependent children, both boys and girls, were rated as having spent significantly more time in social play while field-independent children spent more time in solitary play (Cootes, et al., 1975). In the area of sports, Schreiber (1972) found that male college athletes affiliated with team sports (baseball, football) proved to be more field-dependent. In contrast, students affiliated with individual sports (gymnastics, swimming, tract, etc.) were more field-independent.

There is evidence, from research in career differentiation, that the degree of field-dependence/independence plays a major role in directing people toward interpersonal or impersonal career domains. The studies in this area show that responses to interest inventories present a marked contrasting picture (c.f. Health, 1964; Pemberton, 1952; Distefano, 1969). Field-independent people choose the areas of mathematics and sciences and professions such as mathematics, science; dentistry; industrial-arts; and engineering. They also favor practical domains such as production manager, carpenter, farmer, and mechanic. In contrast, field-dependent persons tend to express interest

in welfare or humanitarian careers such as minister, social worker, elementary school teacher, and social sciences teacher; in persuasive activities such as advertising and selling; and in administrative positions in which dealing with people is important, such as school superintendent, personnel director, etc.

4) Interpersonal attraction.

In general field-dependent people tend to describe themselves and to be described by others (Witkin and Goodenough, in press) in terms such as friendly, considerate, warm, affectionate, polite, non-evaluative, and accepting of others. Field-independents have been described as inconsiderate, rude, demanding, interested in their own ends, and manipulative to achieve their goals. These clusters of characteristics lead one to expect that field-dependent persons tend to get along with others better than field-independent persons do.

Another variable that is considered in interpersonal attraction is management of hostility. The field-dependent person tends to refrain from and avoid direct expression of hostility when interacting with others; on the other hand, the field-independent individual seems to be able to direct hostitlity against others without conflict (Dengerink, O'Leary & Kasher, 1975) although this does not mean that field-dependents differ from field-independents in

experiencing hostile feelings or indirectly expressing such feelings (Goodenough, Witkin, Lewis, Koulack & Cohen, 1974).

The picture presented so far might suggest that the field-independent person would be less liked in the general scene of interpersonal relations, but the findings are not so straightforward. Age, sex, and similarity or dissimilarity in cognitive style can make a difference. Iscar and Carden (1961) found that among peers, field-dependent girls and field-independent boys were the most popular. (But this was not the case in another study in which the subjects were asked to choose work companions (Dreyer, McIntire & Dreyer, 1973). Moreover there are situations in which interpersonal attraction is related to similarity of cognitive style; for instance college roommates of the same sex (Witkin and Goodenough, 1975) and groups working toward a common goal (Goldstone, 1974). However there is evidence that suggests that in some other circumstances, such as conflict resolution in groups of field-independent individuals, the likelihood of agreement and attraction among members is low (Oltman, et al., 1975).

The next section reviews the potential implications for the classroom of research findings in the area of field-dependence/field-independence, with special emphasis on interpersonal relations.

III. EDUCATIONAL IMPLICATIONS OF FIELD DEPENDENCE FIELD INDEPENDENCE IN THE CLASSROOM

Measurement of Field-Dependence/Field Independence

The three basic instruments for the measurement of field-independence were described earlier in this paper. Several other instruments have been developed in recent years. The Research Bulletin (Educational Testing Service) in 1976 reported 24 instruments. Of these new instruments the most popular ones for the measurement of children's cognitive style are Children's Embedded-Figures Test (CEFT), Articulation-of-Body-Concept Scale (ABC), and Portable Rod and Frame Test.

The Children's Embedded Figures Test (1963 Consulting Psychologist Press, Inc.) was developed by Stephen A. Karp and Norma L. Kohstadt. The CEFT serves as a satisfactory downward extension of the Embedded Figures Test. The time limit is 10 to 20 minutes plus a practice session. Performance on the CEFT was noted to improve with increasing age, but was unrelated to sex. There is also a version for younger children, the Preschool Embedded-Figures Test.

The Articulation-of-Body-Concept Scale (ABC) was developed by Hanna Morlens and was designed to measure the degree of articulation (detail and complexity) in drawing the human figure. Since it has been found (Witkin, et al., 1962) that there is a high correlation between field independence and the

degree of articulation in the drawing of the human figure, this test has been used in several studies to measure field-dependence/independence. The procedure and rating scale is described in Psychological Differentiation (Witkin, et al., 1962). Accurate scoring of the ABC does require considerable training. Witkin (cited in Ramirez & Castañeda, 1974) has observed that inexperienced scorers tend to be unduly influenced by clothing, overscoring the figures with detailed clothing.

The Portable Rod and Frame Test, similar to the Rod and Frame Test (RFT), consists of a translucent, plastic box which contains a rod, and measures the subjects ability to position the rod in a true vertical position within the frame. Ramirez and Castañeda (1974) noted that this test can easily be translated into Spanish for Mexican American children who are dominant in Spanish. Another advantage that they mention is the fact that the PRFT does not seem to be a "test" and children are less inhibited. Also there are not obvious "right" and "wrong" answers so it is unlikely that the child will become discouraged by "failures".

However, there are limitations when one deals with the available tests of field-dependence/independence: these tests measure field-independent skills; field dependence is inferred from a lack of field independence. Moreover, a testing situation is almost unavoidably an unnatural situation which can be threatening for field-dependent children. Examiners, thus, must ensure that the child understands the task that is required in

the test. For example, Mexican American children may have trouble understanding the meaning of upright or vertical in either English or Spanish in the PRFT. Or, a child's negative feed-back on failing to find the simple figure in the complex field of the CEFT can frustrate the child to the extent that he or she will loose interest and give up.

In order to overcome difficulties such as these, Ramirez, Castañeda and Herold (Ramirez & Castañeda, 1974; Ramirez & Herold, 1975) have developed a child rating form. This form is based on classroom observations and is designed to help the teacher in detecting a child's cognitive style (see Appendix A). These rating scales, however, have not been standardized or validated and the degree of correlation with other tests of field-independence has not been determined. Moreover, there is no data available yet concerning the usefulness of the scales in the classroom; nevertheless, these scales are a different and innovative approach to determining children's cognitive styles.

It is interesting to note that the authors substitute the term field-sensitive for field-dependent in these publications. The rationale for doing this is that they are aware of the negative connotation that the term dependent carries in our society. The use of the term sensitive is intended to overcome the negative image that early research gave the term "dependent", and to focus on the desirable behaviors found at the other end of the continuum of cognitive style.

Field-Dependence/Field Independence and Learning

Since Hispanic American students tend to score in a more field-dependent direction than Anglo American students, their cognitive style may have educational implications for the teacher attempting to deal with the particular needs of these students in the classroom.

It has been found that field-dependent and field-independent students do not differ significantly in learning ability or memory. They are different, however, in the kinds of material they assimilate most easily and the strategies they follow in achieving their learning goals (c.f. Ruben and Nakamura, 1972; Fitzgibbons et al., 1965).

An area that deserves special attention is the use of structured vs. unstructured materials. Field-independent students apparently can develop, and even enjoy developing, their own ways of addressing an unstructured task. But field-dependent children may have trouble learning if tasks are not explicitly structured since they are more affected by lack of organization. The following study exemplifies this difference.

Schwen (1970) used a programmed instruction sequence which varied in the amount of structure provided by a programmed text. There were two versions of an "imaginary" science text that were given to subjects, one called "large-step" while the other was called "small-step". In the "large-step" version, all generalizations were initially presented with examples and discussion;

then the subjects had to answer some questions. They were given a review of the material if they responded incorrectly. In the "small-step" version, subjects were presented with only one generalization at a time with examples and discussion. After each section of the book, the subjects answered questions and were given corrective review before proceeding to the next section. The "large-step" version was designed so that subjects would have to monitor their learning before the final test. The "small-step" version, however, broke down the learning sequence so that only one generalization at a time was given. Results showed that field-independent students retained more information than field-dependent students in the "large-step" condition but the groups did not differ in the "small-step" condition.

The ability to tolerate verbal criticism is another area in which critical differences have been found between field-dependents and field-independents. It seems that field-dependent invididuals are more affected by criticism than are field-independent individuals and seem to react strongly to this type of external evaluation. (C. F. Cooperman, 1975; Duvall, 1969; Ferrell, 1971). For example, in the Cooperman study a sample of fifth grade children was randomly selected from a racially and economically mixed school system in New York. After having been administered the Children's Embedded Figures Test, the highest scoring 24 males and 24 females were selected for study as field-independents, and the lowest scoring 24 males and 24 females were selected for study as field-dependents. All

the children were given two lists of anagrams of moderate difficulty, one as a pretest and the other as a posttest. After the pretest, subjects were given either positive, neutral, or negative verbal feedback concerning their performance. Results indicated that field-independents performed better than field-dependents in solving the anagrams. Sex did not interact significantly with treatment. Particularly interesting is the fact that field-dependents responded best to positive feedback, but field-independents actually performed best if they were given negative feedback. This finding is of special significance for teachers in providing the appropriate feedback to students, especially when dealing with field-dependent students. Not only may students not benefit from negative feedback, such feedback may actually undermine their learning process.

Another area of difference between field-dependents/independents is the preference that field-dependent people show for working with others. Since field-dependents tend to be sociable and gregarious, like to help others, and do not mind receiving help, these types of experiences may enhance the student's interest and productivity in the classroom. Activities performed in teams in which students work cooperatively toward a common goal may be stimulating for field-dependent students. Activities that encourage group spirit (such as physical education), rather than purely individual achievement, might also benefit field-dependent students.

Further, research has indicated that field-dependent people tend to benefit more from social material. If material which includes relevant social cues maintains the field-dependent's interest during a class presentation, teachers have a useful tool in dealing with particular field-dependent students who remain distant and uninvolved with certain topics. Curriculum that has been humanized, through the use of narration, humor, drama, and fantasy, can make a difference for some students. A curriculum that meets the specific needs of field-dependent children might also focus on the lives of persons that play a main role in the subject being studied.

Herold, Ramirez, and Castañeda have summarized some of the differences that curriculum can offer to the two types of student cognitive styles:

Field-Dependent	Field Independent
1. Materials readily lend themselves to fantasy, humor, and humanization.	1. Materials (such as graphs and charts) draw attention almost exclusively to factual details.
2. Relevant; teacher and students can easily relate personal experiences.	2. Materials have high intrinsic appeal; although irrelevant to personal experience, concepts are sufficiently interesting in and of themselves to sustain student interest.
3. Materials "invite" expressions of feelings from both teacher and students.	3. Materials require a high degree of concentration and methodical attention to subtle details.

4.	Design or format of materials is suitable for cooperative efforts and group projects.	4.	Materials are more suitable for individual effort and competition than for cooperative group work.
5.	Main principles and solutions are easy for teacher to demonstrate and model materials given to students call for application of principles.	5.	Materials stimulate students to search on their own for generalizations and unique solutions.

Most of the research on the educational applications of field-dependence/independence has been carried out in simulated settings and most of the intervention techniques have not been used in actual classrooms. Also, there has been no proof yet that these techniques are effective when working with Hispanic students although, intuitively, the approach seems promising and challenging. There is a need to carry the applications of field-dependence/independence into real classrooms, to detect what is effective, and to determine the limitations of this new methodology.

Field-Dependence/Field-Independence and Teaching

Up to now we have been concerned mainly with the student's cognitive styles. We will now investigate the relationship of the teacher's cognitive style to his/her mode of operating in the classroom. Research has found differences in the preferences that field-independent and field-dependent teachers have towards teaching methods. For example, Wu (1967) found that

field-independent student teachers in social studies tended to rank lecture and discovery techniques as being more important to the practice of good teaching than a discussion approach, which in turn was preferred by field-dependent student teachers. These results are not surprising, since in both the lecture and discovery approaches the teacher must organize the learning situation, guide student learning and provide information to the students. The discussion approach, however, emphasized social interaction and allows the students more control in structuring the classroom situation. Thus, field-independent teachers may prefer to emphasize cognitive aspects of teaching while the field-dependent teachers point out the importance of the social aspects of teaching.

A study by Moore (1973) employed a simulation game which was designed to detect differences in how teachers instruct students in chemistry and question them on the content. The results revealed that field-independent teachers employed questions as instructional tools more often than did field-dependent teachers. Field-dependent teachers simply used questioning as an aid in the evaluation of student learning following instruction; field-independent teachers used questions to introduce new topics and to follow student answers.

A study by Englehardt (1972) involved real-life classroom teaching behavior rather than simulations. In this study an observation technique was used to observe elementary school student teachers. Results did not produce any significant

relationship between the field-independent/dependent dimension and variables such as intensity of teaching, style of teaching (student-centered or teacher-centered), or consistency of teaching style. Ohnmacht (1967) likewise found no relation between field-dependence/independence and indirect or direct teaching, as defined by Flanders Interaction Analysis summary scores. It should be noted, however, that both of these studies have failed to provide information concerning possible differences in more specific teaching behavior: since different factors can be involved when teaching in public schools, some teachers may use techniques different from their own preferences. For example, factors which can affect the teaching technique selected might include the nature of the subjects, professinal training programs and/or societal pressure toward field-independent orientation. It seems apparent the teachers may <u>not</u> correspond with an expected teaching style; thus, we cannot tell for sure whether differences such as those obtained in simulated situations accurately reflect the state of affairs in the real classroom.

Regarding teaching training, Koran, Snow and McDonald (1971) found that field-dependent itern teachers benefit more from video-modeling techniques than from written procedures. Field-independent intern teachers did as well with the written as with the video-modeling techniques. The potential that the combination of modeling theory and cognitive style can have for education is powerful—as is true for many areas of educational psychology, experimental results have generated more new salient questions than they have answered.

If the reader is interested in the more practical applications of cognitive style differentiation (such as classroom arrangement, characteristics of the curriculum, and teaching strategies in the two modes), the book New Approaches to Bilingual Bicultural Education by Castañeda, Ramirez and Herold (1975) is a good resource. The authors of this book developed two observation rating scales for teaching strategies (contained in appendix B). The following table developed by the authors based on research findings, summarizes the characteristics of field-dependent and field-independent teaching strategies.

Field-Dependent Teaching	Field-Independent Teaching
1. Openly warm and affectionate.	1. Formal and serious.
2. Social rewards used to strengthen personal ties and group spirit.	2. Nonsocial rewards given in recognition of individual achievement.
3. Lessons prefaced with supportive assurances from teacher and detailed overview of objectives.	3. Lessons prefaced with factual information and remedies of individual effort.
4. Problem-solving strategies modeled by teacher who when stresses application of general rules to particular problems.	4. Solution to problems often left to imagination of students who use teacher more as a resource person than model.
5. Student's attention drawn to generalization and global characteristics ("the big picture").	5. Student's attention directed to individual elements and ways of combining them as conclusions and generalizations.
6. Curriculum is humanized and adapted to student's personal experiences.	6. Curriculum focuses on factual details often making reference to formulas, graphs and tables.

The question arises as to whether there is any danger in fostering a particular cognitive style. One response to this basic question is offered by Ramirez, et al. (1975) who suggest: (1) to classify students into three groups—extreme field-independent, extreme field-dependent, and a middle group; (2) to use teaching materials and teaching strategies that meet the particular needs of each group; and (3) after a period of time, to expose students to the unfamiliar cognitive style. This procedure would develop the student's ability to function in more than just one cognitive style. This alternative sounds logical and sensible, although it must first be tested and proven to be effective and feasible.

Interpersonal Attraction, Student-Teacher Cognitive Styles

Another question which has been raised is what the effects would be, if any, of having field-independent teachers work with field-dependent students and vice versa. There are several interesting studies which treat this issue. DiStefano (1969) administered questionnaires to teachers and students in a classroom setting. Results showed that students and teachers who shared a common cognitive style viewed one another's personal and cognitive characteristics quite positively. Students and teachers who were mismatched in cognitive style tended to view one another negatively.

A second study by James (1973) employed a specially created mini-course in which classes consisted of three field-independent and three field-dependent students. Questionnaires yielded results similar to those obtained in the DiStefano study. In addition, James asked each teacher to subjectively assign grades to students immediately before the final examination. The most extremely field-independent teacher gave the three field-independent students higher grades than the field-dependent students. Similarly, the most extremely field-dependent teacher gave the three highest grades to the field-dependent students. There are several possible interpretations of these results. Since the grades assigned by teachers were based on classroom impressions, they may have reflected the effects of interpersonal attraction. Or perhaps it is true that field-independent students perform better with field-independent teachers and vice versa. It should be pointed out, however, that the results of this study are far from conclusive. Generalizations should be made with extreme caution, since only male teachers and female students were involved in the sample. Also, the fact that field-independent teachers gave the highest grades to field-independent students and vice versa is not evidence enough to conclude that this occurred because the teachers and students were matched in cognitive styles in this small sample. The results may actually be due to other factors, or to chance. However, there is evidence that suggests that in some specific circumstances, such as a conflict resolution in

dyads of field-dependent/independent individuals, the likelihood of agreement and attraction among members is low (Oltman, et al., 1975). This evidence may indicate why field-independent teachers tend to use the discovery approach more than the group discussion approach since, in the discovery approach, the teacher leads the group toward an objective that is pretty much predetermined; the teacher does not need to arrive at an agreement with the group. On the other hand, in group discussion, the technique more commonly used by field-dependent teachers, students and teacher need to reach some basic agreement before arriving at any conclusion.

Conclusion

As a result of the numerous research articles that have been written in various areas of the field-dependence/independence dimension, the study of field-dependence/independence and its implications for classroom setting is beginning to emerge.

More research is needed in this area however; we need to investigate the manner in which different cultural groups learn when exposed to material and teaching techniques specifically designed to meet their congnitive styles. We need to observe if field-dependent and field-independent teachers actually differ in the use of some teaching techniques when dealing with different cultural groups. There is a need for more research both

in controlled laboratory settings and in the natural classroom setting.

One limitation that this approach has, however, is that cultural groups cannot be treated as homogeneous (C. F. Laosa, 1975) in regard to field-dependence or field-independence. It is a serious mistake to think that any person, by virtue of being Hispanic, is by consequence more field-dependent, or that any person, by virtue of being Anglo American, is by consequence more field-independent. An important point that should be emphasized when making recommendations for cultural groups is that there is a high degree of variablity within groups. Some of the factors related to such variability are the educational and occupational level of parents, relative degree of acculturation to the mainstream American culture and different socialization practices found along a cultural continuum.

Another limitation has to do with the nature and the ethics involved in the implications of the cognitive-style approach when dealing with interpersonal interactions. Human interactions have complex dynamic properties that are hard to predict. Each class of students represents a changing universe of interactions with its own rules. Therefore, if the teacher introduces changes in the universe, he or she must be alert and aware of any effects. Thus, to make specific recommendations is almost impossible. It remains the teacher's individual responsiblity to use his/her professional judgment and common sense in implementing changes of the nature discussed in this paper.

APPENDIX A

Child Rating Form

. Field Sensitive Observable Behaviors

. Field Independent Observable Behaviors

CHILD RATING FORM
FIELD SENSITIVE OBSERVABLE BEHAVIORS

Instructions: Evaluate the child for each behavior listed below by placing a check in the appropriate column.

Child's Name _____ Grade _____ School _____ Date _____

Observer's Name _____

Situation (e.g., "Math lesson"); for general or overall rating, write "Global" _____

FIELD SENSITIVE OBSERVABLE BEHAVIORS	FREQUENCY				
	NOT TRUE	SELDOM TRUE	SOMETIMES TRUE	OFTEN TRUE	ALMOST ALWAYS TRUE
RELATIONSHIP TO PEERS					
1. Likes to work with others to achieve a common goal					
2. Likes to assist others					
3. Is sensitive to feelings and opinions of others					
PERSONAL RELATIONSHIP TO TEACHER					
1. Openly expresses positive feelings for teacher					
2. Asks questions about teacher's tastes and personal experiences; seeks to become like teacher					
INSTRUCTIONAL RELATIONSHIP TO TEACHER					
1. Seeks guidance and demonstration from teacher					
2. Seeks rewards which strengthen relationship with teacher					
3. Is highly motivated when working individually with teacher					
CHARACTERISTICS OF CURRICULUM WHICH FACILITATE LEARNING					
1. Performance objectives and global aspects of curriculum are carefully explained					
2. Concepts are presented in humanized or story format					
3. Concepts are related to personal interests and experiences of children					

CHILD RATING FORM
FIELD INDEPENDENT OBSERVABLE BEHAVIORS

Instructions: Evaluate the child for each behavior listed below by placing a check in the appropriate column.

Child's Name _____ Grade _____ School _____ Date _____

Observer's Name _____

Situation (e.g., "Math lesson"); for general or overall rating, write "Global" _____

FIELD INDEPENDENT OBSERVABLE BEHAVIORS	FREQUENCY				
	NOT TRUE	SELDOM TRUE	SOMETIMES TRUE	OFTEN TRUE	ALMOST ALWAYS TRUE
RELATIONSHIP TO PEERS					
1. Prefers to work independently					
2. Likes to compete and gain individual recognition					
3. Task oriented; is inattentive to social environment when working					
PERSONAL RELATIONSHIP TO TEACHER					
1. Rarely seeks physical contact with teacher					
2. Formal; interactions with teacher are restricted to tasks at hand					
INSTRUCTIONAL RELATIONSHIP TO TEACHER					
1. Likes to try new tasks without teacher's help					
2. Impatient to begin tasks; likes to finish first					
3. Seeks nonsocial rewards					
CHARACTERISTICS OF CURRICULUM WHICH FACILITATE LEARNING					
1. Details of concepts are emphasized; parts have meaning of their own					
2. Deals with math and science concepts					
3. Based on discovery approach					

APPENDIX B

Teaching Strategies Observation Instrument

.Field-Sensitive Teaching Strategies Observation Instrument

.Field-Independent Teaching Strategies Observation Instrument

FIELD SENSITIVE TEACHING STRATEGIES OBSERVATION INSTRUMENT

Indicate the frequency with which each teaching behavior occurs by placing a check in the appropriate column.

Teacher's Name _____ Grade _____ School _____ Date _____

Teaching Situation _____ Observer's Name _____

Teacher's intended teaching style (if applicable) _____

FIELD SENSITIVE TEACHING BEHAVIORS	FREQUENCY				
	NOT TRUE	SELDOM TRUE	SOMETIMES TRUE	OFTEN TRUE	ALMOST ALWAYS TRUE
PERSONAL BEHAVIORS					
1. Displays physical and verbal expressions of approval and warmth					
2. Uses personalized rewards which strengthen the relationship with students					
INSTRUCTIONAL BEHAVIORS					
1. Expresses confidence in child's ability to succeed					
2. Gives guidance to students; makes purpose and main principles of lesson obvious to students					
3. Encourages learning through modeling; asks children to imitate					
4. Encourages cooperation and development of group feeling					
5. Holds informal class discussions relating concepts to students' experiences					
CURRICULUM-RELATED BEHAVIORS					
1. Emphasizes global aspects of concepts; clearly explains performance objectives					
2. Personalizes curriculum					
3. Humanizes curriculum					
4. Uses teaching materials to elicit expression of feelings from students					

FIELD INDEPENDENT TEACHING STRATEGIES OBSERVATION INSTRUMENT

Indicate the frequency with which each teaching behavior occurs by placing a check in the appropriate column.

Teacher's Name _____ Grade _____ School _____ Date _____

Teaching Situation _____ Observer's Name _____

Teacher's intended teaching style (if applicable) _____

FIELD INDEPENDENT TEACHING BEHAVIORS	FREQUENCY				
	NOT TRUE	SELDOM TRUE	SOMETIMES TRUE	OFTEN TRUE	ALMOST ALWAYS TRUE
PERSONAL BEHAVIORS					
1. Maintains formal relationships with students					
2. Centers attention on instructional objectives; gives social atmosphere secondary importance					
INSTRUCTIONAL BEHAVIORS					
1. Encourages independent student achievement					
2. Encourages competition between students					
3. Adopts a consultant role					
4. Encourages trial and error learning					
5. Encourages task orientation					
CURRICULUM-RELATED BEHAVIORS					
1. Focuses on details of curriculum materials					
2. Focuses on facts and principles; encourages using novel approaches to problem solving					
3. Relies on graphs, charts, and formulas					
4. Emphasizes inductive learning and discovery approach					

REFERENCES

Adcock, C. J., & Webberley, M. Primary mental abilities, Journal of General Psychology, 1971, 84, 229-243.

Alexander, S. M. A study of perceptual and verbal differentiation among male college students (Doctoral dissertation, Goerge Washington Univeristy, 1970). Dissertation Abstracts International 1971, 31 6887B. (University Microfilms No. 71-72, 285)

Asch, S. E., & Witkin, H. A. Studies in space orientation: 1. Perception of the upright with displaced visual fields. Journal of Experimental Psychology, 1948, 38, 315-337.(a)

Asch, S. E., & Witkin, H. A. Studies in space orientation: 2. Perception of the upright with displaced visual fields with body tilted. Journal of Experimental Psychology, 1948, 38, 455-477.(b)

Axelrod, S., & Cohen, L. D. Senescence and embedded figures performance in vision and touch. Perceptual and Motor Skills, 1961, 12, 283-288.

Balance, W. D. G. Acquiescence: Acquiescent response style, social conformity, authoritatianism and visual field dependence (Doctoral dissertation, University of Alabama, 1967). Dissertation Abstracts International, 1968, 28, 3458B. (University Microfilms No. 68-1027)

Bauman, G. The stability of the individual's mode of perception and of perception-personality relationships. Unpublished doctoral dissertation, New York University, 1951.

Birnbaum, A. S. G. Social correlates of field articulation in adolescents: the effect upon productivity in the presence of others (Doctoral dissertation, Hobstra University, 1975). Dissertation Abstracts International, 1955, 36, 1959B-1960G. (University Microfilms No. 75-23, 103)

Byers, P. & Byers, H. Non-verbal communication in the education of children, In C. Cazden, V. John & Dhymes (Eds.) Functions of Language in the Classroom. New York: Teachers College Press, 1972.

Castañeda, A., Ramirez, M., & Herold, P. L. New Approaches to Bilingual, Bicultural Education. The Dissemination and Assessment Center for Bilingual Education. Austin, Texas, 1975.

Coates, S., Lord, M. & Vakabovics, E. Field dependence - independence, social - non-social play and sex differences in preschool children. Perceptual and Motor Skills, 1975, 40, 195-202.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D. & York, R. L. Equality of Educational Opportunity. Washington, D.C.: U.S. Government Printing Office, 1966.

Comalli, P. F. Life span developmental studies in perception: Theoretical and methodological issues. Presented at a symposium: On the cognitive process of elderly people. Easter Psychological Association meetings, Atlantic City, 1965.

Cooperman, M. L. Field-Dependence and children's problem-solving under varying contingencies of predetermined feedback (Doctoral Dissertation, Fordham University, 1974). Dissertation Abstracts International, 1975, 35, 2040-2041.

Crandall, U. J. & Sindeldam, C. Children's dependent and achievement behaviors in social situations and their perceptual field dependence. Journal of Personality, 1964, 32, 1-22.

Crutchfield, R. S., Woodworth, D. G., & Albrecht, R. E. Perceptual Performance and the Effective Person (WADC-TN-59-60). Lackland Air Force Base, Texas: Personnel Laboratory, Wright Air Development Center, Air Research and Development Command, April 1958. (ASTIA No. AD-151 039)

Davis, J. M., McCourt, W. F., & Solomon, P. Sensory deprivation: (1) Effects of social contact, (2) Effects of random and visual stimulation. Paper presented to the American Psychiatric Association meeting, Philadelphia, 1958.

Dawson, J. L. M. Cultural and physiological influences upon spatial-perception processes in West Africa—Part I. International Journal of Psychology, 1967, 2, 1150128. (a)

Dawson, J. L. M. Cultural and physiological influences upon spatial-perception process in West Africa—Part II. International Journal of Psychology, 1967, 2, 171-185. (b)

Dengerink, H. A., O'Leary, M. R., & Kasner, K. H. Individual differences in aggressive responses to attack: Internal-external locuse of control and field dependence independence. Journal of Research in Personality, 1975, 1, 191-199.

DiStefano, J. J. Interpersonal perceptions of field independent and field dependent teachers and students (Doctoral dissertation, Cornell University, 1969). Dissertation Abstracts International, 1970, 31, 463A-46A. (University Microfilms No. 70-11, 225)

Dreyer, A. A., McIntire, W. G., & Dreyer, C. A. Sociometric status and cognitive style in Kindergarten children. Perceptual and Motor Skills, 1973, 37, 407-412.

Dyk, R. B., & Witkin, H. A. Family experiences related to the development of differentiation in children. Child Development, 1965, 30, 21-55.

Eagle, M., Golberger, L. & Breitmen, M. Field dependence and sensory for social vs. neutral, and relevant vs. irrelevant incidental stimuli. Perceptual and Motor Skills, 1969, 29, 903-910.

Engelhardt, J. M. The relationship between a dimension of cognitive style and the teaching behavior of prospective elementary teachers of mathematics (Doctoral dissertation, University of Texas at Austin, 1972). Dissertation Abstracts International, 1973, 33, 4934A. (University Microfilms No. 73-7548)

Faterson, H. F., & Witkin, H. A. Longitudinal study of development of the body concept. Developmental Psychology, 1970, 2, 429-438.

Ferrell, J. G. The differential performance of lower class, preschool, Negro children as a function of the sex of E, sex of S, reinforcement condition, and the level of field dependency (Doctoral dissertation, University of Southern Mississippi, 1971). Dissertation Abstracts International, 1971, 32, 3028B-3029B. (University Microfilms No. 71-28, 831)

Fiebert, M. Cognitive styles in the deaf, Perceptual and Motor Skills, 1967, 24, 319-329.

Fishman, J. A. Language Loyalty in the U.S. The Hague MoutonL 1966.

Fitzgibbons, D. J. & Goldberger, L. Task and social orientations: a study of field dependency, "arousal" and memory for incidental material. Perceptual and Motor Skills, 1971, 32, 167-174.

Fitzgibbons, D., Goldberger, L. & Eagle, M. F. Dependents and memory for incidental learning. Perceptual and Motor Skills, 1965, 21, 743-749.

Franks, C. M. Differences determinees par le personalite dans la perception visuelle de la verticalite. Revue de Psychologie Appliquee, 1956, 6, 235-246.

Garrett, J. B. Effect of hypnotic time distortion upon embedded figures test performance. In H. W. Leibowitz (Chair.), Hypnosis and Perceptual Processes. Symposium presented at the meeting of the American Psychological Association, Chicago, September 1975.

Galdstom, M. W. Verbal participation in small groups as a function of group composition (Doctoral dissertation, George Washington University, 1974). Dissertation Abstracts International, 1974, 35, 1910B-1911B. (University Microfilms No. 74-22, 255)

Goodenough, D. R. The role of individual differences in field dependence as a factor in learning and memory, Psychological Bulletin, in press.

Goodenough D. R., Witkin, H. A., Lewis, H. B., Koulack, D. & Cohen, H. Repression, interference and field dependence as factors in dream forgetting. Journal of Abnormal Psychology, 1974, 83, 32-44.

Heath, R. W. Curriculum, cognition and educational measurement. Educational and Psychological Measurement, 1964, 24, 239-253.

Holley, M. Field-dependence-independence, sophistication-of-body-concept and social distance selection (Doctoral dissertation, New York University, 1972). Dissertation Abstracts International, 1972, 33, 296B. (University Microfilms No. 72-20, 635)

Holtzman, W.J., Diaz-Guerrero, R., & Swartz, J. D. Personality development in two cultures: A cross-cultural longitudinal study of school children in Mexico and the United States. Austin: University of Texas Press, 1975.

Jackson, G., & Cosca, C. The inequality of educational opportunity in the Southwest: An observational study of ethnically mixes classrooms. American Educational Research Journal, 1974, 11, 219-229.

James, C. D. R. A cognitive style approach to teacher-pupil interaction and the academic performance of black children, Unpublished master's thesis, Rutgers University, 1973.

Justice, M. T. Field-dependency intimacy of topic and interperson distance (Doctoral dissertation, University of Florida, 1969). Dissertation Abstracts International, 1970, 31, 395B-396B. (University Microfilms No. 70-12, 243)

Kagan, S. Field dependence and conformity of rural Mexican and urban Anglo American children. Child Development, 1974, 45, 765-771.

Kagan, S. & Madsen, M. C. Cooperation and competition of Mexican, Mexican American and Anglo American children under four instructional sets. Developmental Psychology, 1971, 5, 32-39.

Karp, S. A. Field dependence and overcoming embeddedness. Journal of Consulting Psychology, 1963, 27, 294-302.

Karp, S. A., Witkin, H. A., & Goodenough, D. R. Alcoholism and psychological differentiation: Effect on achievement of sobriety on field dependence. Quarterly Journal of Studies on Alcohol, 1965(a), 26 580-585.

Klein, G. S. Cognitive control and motivation. In G. Lindzey (Eds), Assessment of human motives. New York: Rinehart, 1958.

Koran, M, L., Snow, R. E. & McDonald, F. J. Teacher aptitude and observational learning of a teaching skill. Journal of Educational Psychology, 1971, 62, 291-228.

Kraidman, E. Developmental analysis of conceptual and perceptual functioning under stress and non-stress conditions. Unpublished doctoral dissertation, Clark University, 1959.

Lefeourt, J. M., Hogg, E. & Sordoni, C. Focus of control, field dependence and the conditions arousing objective vs. subjective self-awareness. Journal of Research in Personality, 1975, 9, 21-36.

Linton, H. B. Relations between mode of perception and tendency to conform. Unpublished doctoral dissertation, Yale University, 1952.

Linton, H. B. Dependence on external influence: Correlates in perception, attitudes and judgment. Journal of Abnormal and Social Psychology, 1955, 51, 502-507.

Moore, C. A. Styles of teacher behavior under simulated teaching conditions (Doctoral dissertation, Stanford University, 1973). Dissertation Abstracts International, 1973, 34, 3149A-3150A. (University Microfilms No. 73-30, 449)

Morell, J. A. The training of field independence (Doctoral dissertation, Northwestern University, 1974). Dissertation Abstracts International, 1974, 35, 3068B. (University Microfilms No. 74-28, 693)

Ohnmacht, F. W. Relationships among field independence, dogmatism, teacher characteristics and behavior of pre-service teachers. Paper presented at the Meeting of the American Educational Research Association, New York, February 1967. (ERIC Document Reproduction Service No. ED 011 525)

Oltman, P. K., Goodenough, D. R., Witkin, H. A., Freedman, N., & Friedman, F. Psychological differentiation as a factor in conflict resolution. Journal of Personality and Social Psychology, 1975, 32, 730-736.

Oltman, P. K. Field dependence and arousal. Perceptual and Motor Skills, 1964, 19, 441.

Paeth, C. A. A Likert scaling of student value statements, field independence-field dependence, and experimentally-induced change (Doctoral dissertation, Oregon State University, 1973). Dissertation Abstracts International, 1973, 34, 2288B-2289B. (University Microfilms No. 72-25, 368)

Pembenton, C. L. The closure factors related to temperament. Journal of Personality, 1952, 21, 159-175.

Pollack, M., Kahn, R. L., Karp, E., & Fink, M. Individual differences in the perception of the upright in hospitalized psychiatric patients. Paper presented at the annual meeting of the Eastern Psychological Association, New York, 1960.

Ramirez, M. & Castañeda, A. Cultural democracy, bicognitive development, and education. New York: Academic Press, 1974.

Ramirez, M. & Price-Williams, D. R. Cognitive styles of children of three ethnic groups in the United States. Journal of Cross-Cultural Psychology, 1974, 5, 212-219.

Ruble, D. N., & Nakamura, C. Y. Task orientation versus social orientation in young children and their attention to relevant social cues. Child Development, 1972, 43, 471-480.

Schwartz, D. W., & Karp, S. A. Field dependence in a geriatric population. Perceptual and Motor Skills, 1967, 24, 495-504.

Schwen, T. M. The effect of cognitive styles and instructional sequences on learning a hierarchical task (Doctoral dissertation, Indiana University, 1970). Dissertation Abstracts International, 1970, 31, 2797A-2798. (University Microfilms No. 70-23, 380)

Solar, D., Davenport, G., & Bruehl, D. Social compliance as a function of field dependence. Perceptual and Motor Skills, 1969, 29, 299-306.

Sousa-Ponza, J. F., Rohrberg, R., & Shulman, E. Field dependence and self-disclosure. Perceptual and Motor Skills, 1973, 36, 735-738.

U.S. Bureau of the Census. Census of population: 1970; the nineteenth decennial of the United States. Washington, D.C.: U.S. Government Printing Office, 1970.

U.S. Commission on Civil Rights. A better chance to learn: Bilingual-bicultural education. Washington, D.C.: U.S. Government Printing Office, 1975.

U.S. Commission of Civil Rights, Staff Report. Public education for Puerto Rican children in New York City. February, 1972. (Memeo)

U.S. Commission of Civil Rights. Teachers and students. Report V: Mexican American study. Differences in teacher interaction with Mexican American and Anglo students. Washington, D.C.: U.S. Government Printing Office, 1973.

U.S. Commission on Civil Rights. The unfinished education. Report II of the Mexican American Educational Series. Washington, D.C.: U.S. Commission of Civil Rights, 1971.

Weiner, M. Effects of training in space orientation on perception of the upright. Journal of Experimental Psychology, 1955, 49, 367-373.

White, B. W. Visual and auditory closure. Journal of Experimental Psychology, 1953, 48, 234-240.

Witkin, H. A. Perception of body position and the position of the visual field. Psychological Monographs, 1949, 63 (Whole No. 302).

Witkin, H. A. Perception of the upright when the direction of force acting on the body is changed. Journal of Experimental Psychology, 1950, 40, 93-106.

Witkin, H. A. Further studies of perception of the upright when the direction of the force acting on the body is changed. Journal of Experimental Psychology, 1952, 43, 9-20.

Witkin, H. A., & Asch, S. E. Studies in space orientation: IV. Further experiments on perception of the upright with displaced visual fields. Journal of Experimental Psychology, 1948, 38, 762-782.(b)

Witkin, H. A., & Berry, J. W. Psychological differentiation in cross-cultural perspective. Journal of Cross-Cultural Psychology, 1975, 6, 4-87.

Witkin, H. A., & Goodenough, D. R. Field dependence and interpersonal behavior. Psychological Bulletin, in press.

Witkin, H. A., & Oltman, P. M. Cognitive style. International Journal of Neurology, 1967, 6, 119-137.

Witkin, H. A., & Cox, P., & Friedman, F. Field dependence-independence and psychological differentiation. Bibliography with Index, Supplement #2, Research Bulletin. Princeton, N.J.: Educational Testing Service, 1976.

Witkin, H. A., Goodenough, D. R., & Karp, S. A. Stability of cognitive style from childhood to young adulthood. Journal of Personality and Social Psychology, 1967, 7, 291-300.

Witkin, H. A., Moore, C. A., Goodenough, D. R., & Cox, P. W. Field-dependent styles and their educational implications. Research Bulletin. Princetown, N.J.: Educational Testing Service, 1975.

Witkin, H. A., Oltman, P. K., Raskin, E., & Karp, S. A. A manual for the embedded figures test. Palo Alto: Consulting Psychologist Press, 1971.

Witkin, H. A., Birnbaum, J., Lomonaco, S., Lehr, S., & Herman, J. L. Cognitive patterning in congentially, totally blind children. Child Development, 1968, 39, 767-786.

Witkin, H. A., Cox, P. W., Friedman, F., Hrishikesan, A. G., & Siegel, K. Field dependence-independence and psychological differentiation. Bibliography with Index. Research Bulletin. Princeton, N.J.: Educational Testing Service, 1974.

Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R., & Karp, S. A. Psychological differentiation. New York: John Wiley, 1962.

Witkin, H. A., Lewis, H. B., Hertzman, M., Machover, K., Meissner, P., & Wapner, S. Personality through perception. New York: Harper & Row, 1954.

Witkin, H. A., Price-Williams, D., Bertini, M., Cristiansen, B., Altman, D. K., Ramirez, M., & Van Mell, J. Social conformity and psychological differentiation. International Journal of Psychology, 1974, 9, 11-29.

Wolf, A. Body rotation and the stability of field dependence. Journal of Psychology, 1965, 59, 211-217.

Wolitzki, D. L., & Wachtel, P. L. Cognitive controls and cognitive style. In B. Wolman (Ed.), Handbook of general psychology. Englewood, Cliffs, N.J.: Prentice-Hall, 1970.

Wu, J. J. Cognitive style and task performance—A study of student teachers (Doctoral disseration, University of Minnesota, 1967). Dissertation Abstracts International, 1968, 29, 176A. (University of Microfilms No. 68-7408)

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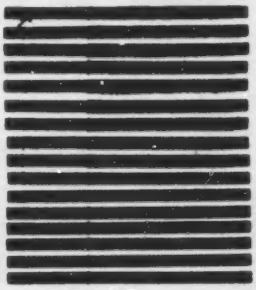

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